South Carolina Department of Health
and Environmental Control

CORRECTIVE ACTION GUIDANCE

Division of Underground Storage Tank Management
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Corrective Action Guidelines for Petroleum Releases

I. Introduction - This document outlines the criteria for Corrective Action of petroleum releases from regulated underground storage tanks (UST) and is designed to meet the applicable requirements of the South Carolina Underground Storage Tank Control Regulations, R.61-92 Part 280, and the SUPERB Site Rehabilitation and Fund Access Regulations, R.61-98.

Any confirmed release of petroleum or petroleum product that results in concentrations of Chemicals of Concern (CoC) in excess of the risk-based screening level (RBSL) requires corrective action. The South Carolina Risk-Based Corrective Action for Petroleum Releases guideline shall be used to determine the corrective action goal (Site-Specific Target Level). The Site-Specific Target Level (SSTL) is the level to which each CoC must be reduced to ensure existing or potential receptors shall not be affected above the RBSL.

II. Corrective Action Methodologies - The appropriate technology(ies) or method(s) to reduce the concentrations of each CoC and/or to recover free product shall be a site-specific decision based on site-specific geology, the distribution of the CoC, the potential risk to public health and the environment, the need for source area treatment, and the effectiveness of technologies or methods under similar site-specific conditions. Based on the concentration of each CoC and the potential risk to receptors, two types of corrective action or a combination of both are possible: A) active corrective action and B) intrinsic remediation or natural attenuation.

A. Active Corrective Action - Application of a technology(ies) or method(s) by man to reduce the concentration of CoC. Active corrective action is applicable where:

1. The concentration of each CoC must be reduced to prevent an impact to a receptor above the RBSL. The goal of active corrective action is the reduction of each CoC at or below the calculated SSTL.

2. Free phase product is present in a thickness greater than 0.01 foot or one-eighth (1/8) inch.

3. The CoC plume continues to increase in size or is migrating and the concentration of individual CoC is increasing. This is based on the presence of free product or historical data which shows an increase in CoC at a particular sampling point.

B. Intrinsic Remediation or Natural Attenuation - Intrinsic remediation or natural attenuation is defined as the verifiable reduction of CoC through naturally occurring microbial activity and/or fate and transport attenuation mechanisms. Intrinsic corrective action may be appropriate where the concentration of each CoC is below the SSTL, but one or more of the individual CoC are above their RBSL. Intrinsic or natural attenuation is appropriate where:

1. The concentration of each CoC is less than the SSTL for each possible point of compliance.

2. Free phase product has been removed. If free product appears/reappears, an active corrective action plan must be initiated until free product is removed.

3. The CoC plume is at or approaching equilibrium (i.e., the advancement of the plume is slowing down), and the concentration of a CoC is not increasing at any point. This shall be determined using all available historical data (two ground-water quality sampling events at a minimum are necessary). In many cases, this data shall be part of the site assessment activities.

4. Based on a review of all historical data and fate and transport modeling results, the predicted impact on actual or potential receptors shall not exceed the RBSL at any time (i.e., no unacceptable risk will result by utilizing intrinsic remediation).

5. Monitoring in excess of eighteen months shall not be required to demonstrate natural attenuation.

C. Combined Approach

In some cases, active corrective action may be used initially to reduce the concentration of CoC to the SSTL and then be followed by intrinsic remediation or natural attenuation to further reduce the level of CoC to the RBSL. Likewise, an intrinsic approach may need to be upgraded when there is a change in land use or zoning ordinances. As exposure points are changed or created, a decrease in the SSTL may result and active corrective action may be required.

III. Procedures -

A. Corrective Action Data Summary Form - The data necessary for development of active and/or intrinsic corrective action plans is collected during site assessment activities using risk-based tier 1 or tier 2 risk evaluations. The corrective action data summary form (found in Appendix B) is designed to provide basic site information and the corrective action goal. The form includes information regarding the location of the release, current site status, exposure and point of compliance locations, the SSTL, and the selected corrective action remedial alternative or combination of alternatives for easier review and processing.

B. Professional Certification - All corrective action plans and reports shall be signed by a South Carolina Registered Professional Geologist (PG) or Engineer (PE). After September 1997, all corrective action and assessment activities shall be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation contractor as required by R.61-98.

C. Financial Approval - For corrective action of petroleum underground storage tank (UST) releases funded by the State Underground Petroleum Environmental Response Bank (SUPERB) Account, preapproval of all cost shall be required. As a service, the Department can directly procure the services of an environmental contractor for SUPERB releases if requested by the UST owner or operator.

For proposed active corrective action, the UST owner or operator shall submit technically appropriate bids from a minimum of three site rehabilitation contractors. Payment will be on a "Pay for Performance" basis. See Appendix A for payment and bidding procedures.

For proposed intrinsic remediation, the UST owner or operator shall submit costs on the Department's assessment component cost proposal form. See SUPERB Allowable Costs for a copy of financial forms and rates.

D. Corrective Action Plan Development - The UST owner or operator or the site rehabilitation contractor shall submit a Corrective Action Plan (CAP) that describes the proposed active or intrinsic corrective action. See Section IV for a description of the contents.

E. Public Notice - Pursuant to the South Carolina Underground Storage Tank Control Regulations, R.61-92, Section 280.67, the Department shall provide notice to the public by means designed to reach those members of the public directly affected by the planned corrective action. Notice shall be provided to each person that currently owns a property that: 1) is adjacent to the effected property(ies), 2) is currently impacted by the release, and 3) may potentially become impacted in the future. The duration of the public notice shall be long enough to give the public a chance to provide their comments.

If the comments received indicate that open communication between the Department and the public is needed to explain the method(s) and technologies(s) or to answer any questions, a meeting shall be scheduled in their local area at a time suitable to encourage participation. The UST owner or operator and/or the site rehabilitation contractor may be invited to the meeting to further discuss the proposed corrective action.

If the public concerns cannot be resolved, changes in the CAP and an additional public notice may be required.

F. Corrective Action Plan Approval and Implementation - Subsequent to the public notice process, the Department shall issue the necessary permit approvals so that the CAP can be implemented. The approval letter will list any conditions that apply for implementation. If any of the conditions change during implementation, the UST owner or operator and/or the site rehabilitation contractor shall notify the Department of those changes so that any risk associated with continuation of the active or intrinsic remediation proposal can be reevaluated.

G. Performance Evaluation - A Corrective Action Performance Evaluation shall be completed and submitted to the Department in accordance with a schedule determined by the Department. Typically, active corrective action reports shall be submitted on a quarterly basis and intrinsic performance evaluations on a semi-annual basis. The elements of a performance evaluation are outlined in Section V.

IV. Corrective Action Plan Content - The CAP shall provide a brief summary of the information pertinent to describe and justify the proposed corrective action(s). The following items should be included in the CAP:

A. Technologies - Each active (pump and treat, sparge, vapor extraction, excavation, bioremediation, etc.) and passive (monitoring of natural contamination decay) corrective action technology or combination of both which is proposed to remove free product and/or to reduce the concentrations of CoC shall be described in detail. The CAP shall include scientific models, computations, and discussion of how each corrective action method shall work to reduce the concentration of CoC at or below the SSTL. Any assumptions used should be listed with an explanation.

B. Construction - The proposed and existing locations and construction details of any trenches, recovery wells, injection wells, monitoring points, compliance points, and other features needed as part of the proposed corrective action shall be provided and depicted on a site map.

C. Clean-up Time Frame - For active corrective action, the estimated time to achieve the SSTLs and RBSLs, install verification wells, and remove or abandon all assessment and remediation items installed as part of corrective action shall be provided.

D. Abandonment - For any corrective action, the proposed details for well abandonment and equipment removal (including underground piping and trenches) shall be provided.

E. Monitoring Proposal - A Corrective Action Monitoring Plan Form is included in Appendix B.

The primary evidence for effectiveness of corrective action shall be an observed reduction in the concentration of each CoC and a corresponding reduction in the overall size and geometry of the plume.

Secondary evidence for remediation by intrinsic or natural attenuation, used in conjunction with the primary evidence, shall be provided by geochemical indicators and further modeling of solute and transport rates or estimates of assimilative capacity. Ground-water quality monitoring shall include, at a minimum, dissolved oxygen and temperature. Additional parameters that may also be used to further support intrinsic remediation or natural attenuation include: nitrate, sulfate, total dissolved iron, methane, total organic carbon, redox potential, soluble salts, buffer index, soluble potassium, sodium, calcium, sulfur, boron, copper, zinc, cation exchange capacity, exchangeable ions, soluble phosphorus, and soluble manganese.

Initially all monitoring wells or verification points shall be sampled for all CoC that exceed RBSL. At least three wells will be routinely sampled. One well located in or adjacent to the source, a downgradient compliance point, and a monitoring well upgradient of the source to monitor background conditions. Additional verification points may be warranted where multiple potential sources, multiple receptors, and/or heterogeneous site conditions exist. The placement of the downgradient point of compliance shall be such that any potential migration can be verified, unless precluded by an obstacle. For plumes with lengths exceeding 100 feet, additional intermediate verification points may be necessary. The spacing of intermediate points shall be determined based on the current distribution of CoC and the calculated rate of CoC migration. Once seasonal variations and levels of CoC have been established, the frequency and number of CoC may be reduced. Sampling parameters and monitoring frequency will be determined based on:

1) historical data and prior site analytical results,
2) past fluctuations in water table and COC concentrations due to seasonal fluctuations, and
3) requirements of any permits.

Depth to ground water, relative ground-water elevations, and free product thicknesses shall be collected from all monitoring wells, points of compliance, and verification points during each monitoring event.

All samples shall be collected and analyzed following industry standards for Quality Assurance and Quality Control, decontamination, well purging, holding times, etc. All analyses shall be performed by a laboratory certified in South Carolina for the relevant analytical methods. The required reporting limits are listed in Table 1.

Table 1. Reporting Limits

	Soil Samples	Water Samples
PRODUCT	Analyte....Method*.....RL**	Analyte.....Method*.....RL**
Gasoline, Diesel, Fuel Oil, Kerosene	BTEX.....8260.....5µg/kg Naphthalene.....8260.....5µg/kg PAH..... 8270.....660µg/kg	BTEX.....8260.....5µg/l Naphthalene.....8260.....5µg/l MTBE.....8260.....40µg/l PAH.....8270.....10µg/l Dissolved Oxygen....360.1.....0.5mg/l Iron.....200.7.....30µg/l Lead.....200.7.....5µg/l Nitrates.....352.1.....100µg/l Sulfates.....375.3.....1mg/l
Leaded Gasoline	BTEX.....8260.....5µg/kg Naphthalene.....8260.....5µg/kg PAH.....8270.....660µg/kg Lead..... µg/kg	BTEX.....8260.....5µg/l Naphthalene.....8260.....5µg/l EDB.....8260.....5µg/l PAH.....8270.....10µg/l Dissolved Oxygen....360.1.....0.5mg/l Iron.....200.7.....30µg/l Lead.....200.7.....5µg/l Nitrates.....352.1.....100µg/l Sulfates.....375.3.....1mg/l
Waste Oil	BTEX.....8260.....5µg/kg Naphthalene.....8260.....5µg/kg TPH.....9071.....10mg/kg PAH.....8270.....660µg/kg Metals.....AA-ICP.....5µg/kg	BTEX.....8260.....5µg/l Naphthalene.....8260.....5µg/l TPH.....9071.....10mg/l PAH.....8270.....10µg/l Dissolved Oxygen...360.1.....0.5mg/l Iron.....200.7.....30µg/l Lead.....200.7.....5µg/l Nitrates.....352.1.....100µg/l Sulfates.....375.3.....1mg/l Metals.....AA-ICP.....5µg/l

BTEX - Benzene, Toluene, Ethyl-benzene, Xylenes
Naphthalene - **TOTAL** Naphthalenes
MTBE - Methyl Tertiary Butyl Ether
PAH - Polynuclear Aromatic Hydrocarbons (Benzo(a)anthracene, Benzo(b)flouranthene, Benzo(k)flouranthene, Chrysene, Dibenz(a,h)anthracene)
EDB - Ethylene dibromide
Metals - Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver
AA-ICP - Atomic Absorption - Inductively Coupled Plasma
* - **OR** equivalent method that can achieve the same reporting limits; for DO, includes field methods
** - RL = Reporting Limit

F. **References** - All documents which contain the data, fate and transport modeling, and risk evaluation in support of the CAP shall be listed on the Corrective Action Monitoring Plan Form included in Appendix B.

G. **Appendix** -

1. All available historical soil quality data shall be presented in a tabular format.

2. All available historical ground-water quality data shall be presented in a tabular and/or graphical format. Free product thickness data should be included, where appropriate.

3. All available historical potentiometric data shall be presented in a tabular and/or graphical format.

4. The location of the site shall be depicted on the relevant portion of a topographic or county map. The map shall be included as Figure 1.

5. A scaled tax map showing the ownership (including mailing addresses) of all surrounding properties that are currently impacted or may potentially become impacted in the future shall be included as Figure 2. The current use (e.g., vacant lot, restaurant, school, residence, etc.) of each property shall be listed.

6. A scaled site map depicting the current extent of soil impact shall be included as Figure 3. Soil boring locations shall be depicted and concentrations for each CoC listed beside each boring.

7. A scaled site map depicting the current extent of ground-water impact shall be included as Figure 4. A separate map shall be included for each CoC which exceeds the RBSL or SSTL. Monitoring well locations shall be depicted and concentrations for each CoC listed beside each well.

8. One cross section should be included as Figure 5. This cross section shall be oriented along the x-axis of the plume. Soil and monitoring well locations shall be depicted. Organic vapor, soil, and ground-water quality data shall be listed adjacent to each boring or monitoring well at the appropriate depth intervals. Any stratigraphic or structural features which may serve as preferential pathways or semi-confining units (e.g., sand lenses, fractures, clay lenses) shall also be depicted.

9. A scaled site map(s) depicting the predicted future migration of the CoC shall be included as Figure 6. A separate site map shall be included for each COC which exceeds the RBSL or SSTL. The potential exposure point(s) and points of compliance shall be depicted on each map. Each site map shall depict an isoconcentration line assuming zero biodegradation. Additional isoconcentration lines shall be depicted assuming low biodegradation rates (i.e., 1E-10) or rates derived using limited site specific information.

10. A scaled site map(s) depicting the location of active corrective action wells, trenches, pipe runs, and/or equipment shall be included as Figure 7.

11. A scaled site map(s) depicting the location of active corrective action wells aand/or trenches and the expected radius of influence of each well and/or trench shall be included as Figure 8.

* **All Figures shall include a north arrow and a bar scale. All site maps and cross sections shall have the same horizontal scale.**

H. **Permits** - All required Department applications for permits (injection, National Pollution Discharge Elimination System General Permit, Bureau of Air Quality Control Modeling Form, thermal treatment, etc). Each permit shall be submitted as a separate appendix. An Engineering Report, if required, shall be prepared and submitted after the public notice process is completed.

I. **Other Items** - Any other items requested by the Department (e.g., performance bond) will be included as the next Appendix.

V. **Performance Evaluation** - The Performance Evaluation must be signed by a South Carolina Registered Professional Geologist (PG) or Engineer (PE). After September 1997, all rehabilitation activities associated with a UST release shall be performed by a SCDHEC certified site rehabilitation contractor. A Performance Evaluation Form is provided in Appendix B. The following should be addressed:

A. The receptor survey shall be verified. If any new actual or potential receptors are identified that may change the SSTL, recalculation of the SSTL shall be required.

B. The historical and seasonal concentration trends shall be evaluated for evidence verifying the reduction of CoC. All trends shall be explained on the Performance Evaluation Form. For example, decreasing concentrations in the source area and increasing concentrations hydraulically downgradient of the source indicates that the plume is continuing to migrate.

C. For intrinsic corrective action, all biological indicator parameters that were included in the monitoring program shall be evaluated for evidence supporting biological degradation (e.g., depleted oxygen in the interior of the plume implies that microorganisms are utilizing the oxygen as they mineralize petroleum constituents).

D. If the data support that intrinsic remediation of CoC is taking place, a cleanup time frame for achieving RBSL in all wells shall be calculated. The selected method to calculate a cleanup time frame shall be technically justified. Two suggested methods are 1) using conservative tracer compounds, such as trimethylbenzene or tetramethylbenzene that are present in all gasoline releases, to calculate a biodegradation rate and 2) calculating a mass balance loss of petroleum using one or more of the following biological indicator parameters: dissolved oxygen, nitrate, sulfate, total dissolved iron, and methane.

E. The local city or county administrative authorities shall be contacted for an update on the current applicable zoning and land use ordinances. A copy of the applicable sections or summary of the local ordinances shall be included in the report. If a copy cannot be obtained, the appropriate authorities name, phone number, and business address shall be

provided with a synopsis of the relevant information. The reasonably anticipated future land use shall be reevaluated to determine if the predicted cleanup time frame is adequate to be protective of human health and the environment.

F. Recommendations for alternative approaches shall be included where:

1. The selected active corrective action technology (ies) or method(s) is not effectively reducing the concentrations of CoC or an unacceptable risk to potential receptor may result, the selected corrective action technology(ies) shall be redesigned for the purpose of increasing their efficiency.

2. The RBSLs are exceeded and installation of a receptor within an area that is or may become impacted by CoC is highly probable prior to restoration of the soil and ground water to the RBSL or if the future land use cannot be anticipated to remain the same, active corrective action is appropriate.

3. The intrinsic or natural attenuation monitoring data over an 18 month period are insufficient to verify the model predictions and/or to verify a reduction of CoC, the contractor shall propose either:
   a) active corrective action by itself or in conjunction with natural attenuation, or
   b) continuation of the monitoring program with additional biological indicator parameters for the purpose of verifying a reduction of CoC.

4. The data support that intrinsic remediation is taking place (see Section VI), the Department may issue a "Conditional No Further Action" decision in accordance with R.61-98.

G. All ground-water quality and biological indicator parameter data shall be summarized on the Performance Evaluation Form.

H. Appendix

1. The location of the site shall be depicted on the relevant portion of a topographic or county map (Figure 1).

2. All ground-water quality and biological indicator parameter data collected since the inception of corrective action shall be presented in a graphical format.

3. All potentiometric data collected since the inception of corrective action shall be presented in a tabular and/or graphical format.

4. A scaled site map depicting the current extent of ground-water impact shall be included as Figure 2*. A separate map shall be included for each CoC which exceeds the RBSL. Monitoring well locations shall be depicted and concentrations for each CoC listed beside each well.

5. A scaled site map depicting the measured results for each biological indicator parameter shall be included as Figure 3*. A separate map shall be included for each parameter. Monitoring well locations shall be depicted and the parameter results listed beside each well. As an alternative, the data may be presented as a series of transparent overlays of Figure 2 or multicolor maps.

6. All laboratory data sheets and chain of custody forms for samples collected since

the inception of corrective action or the last Performance Evaluation, whichever is less, shall be included.

* **All Figures shall include a north arrow and a bar scale. All site maps and cross sections shall be prepared to the same horizontal scale.**

VI. **"No Further Action" Decision** - A "no further action" decision may be issued by the Department if the concentration of each CoC are at or below the RBSL for a sampling event. The samples that support the decision shall be:

A. Collected from the location(s) deemed most likely to represent the worst case CoC,
B. Analyzed for appropriate parameters by a laboratory certified in the state of South Carolina for those parameters, and
C. Collected in accordance with industry standards for quality assurance and quality control.

If a corrective action system was used, a decision by the Department will be reached based on monitoring data for two consecutive quarters after soil and ground-water corrective action system is stopped.

VII. **"Conditional No Further Action" Decision** - Pursuant to The SUPERB Site Rehabilitation and Fund Access Regulations, R.61-98, a "Conditional No Further Action" decision can be granted once the following has been demonstrated:

A. the RBSL or SSTL have been met;
B. the CoC have reached equilibrium or are not moving at a significant rate;
C. concentrations of CoC are not increasing;
D. no unacceptable risk to human health, safety, or the environment exists; and
E. concentrations of CoC will not exceed RBSL at the exposure point or receptor.

VIII. **Limits and Assumptions of a "Conditional No Further Action"** - Pursuant to R.61-98, a "Conditional No Further Action" letter is based on site-specific conditions and the current or reasonably anticipated future use of the site. The decision will outline all land use assumptions and conditions at the time the decision was made. The Department shall be notified of any changes in the listed assumptions or conditions so that the potential risk can be reevaluated. Examples of assumptions or conditions that may be attached to a "Conditional No Further Action" decision include, but are not limited to:

A. The property is zoned for commercial use and shall remain commercial in the future.
B. The ground water in the impacted area is not currently being used as a source of drinking water and shall not be used as a source of drinking water in the near future.

IX. **Well Abandonment** - Once a "No Further Action" decision is made and the UST owner or operator is notified, abandonment of the monitoring wells is suggested to minimize the possibility of leakage of potential future spills into the ground-water aquifer. Abandonment shall be in accordance with the South Carolina Well Standards and Regulations R.61-71. The UST owner or operator may also choose to keep these wells for future monitoring purposes. If this option is chosen, that UST owner or operator becomes responsible for the future maintenance and abandonment of the monitoring wells.

X. **Registry of Releases** - The Department maintains a registry of releases for all "Conditional No Further Action" decisions. The longitude and latitude from the Geodetic Information System (GIS), local tax map number, and street address of each closed conditional release is available at the

Department's Freedom of Information Office (telephone number (803) 734-5376). If a person is able to demonstrate all CoC below the RBSL, then that person may request for the release to be removed from the registry of releases and a "no further action" decision can be issued by the Department.

D H E C
PROMOTE PROTECT PROSPER

Corrective Action BID Proposal
Division of Underground Storage Tank Management

Facility ID#: _____ Facility Name: _____

1. The goal (Site Specific Target Level for each chemical of concern) of the corrective action is _____

   _____

2. A copy of a site map and other pertinent site data on the area to be remediated is attached.

3. If you have additional questions or would like to review the file on this site, please contact _____ , project manager at (803) 734-_____ .

4. Your bid for corrective action should be received by _____ for consideration.

See back of this form for instructions.

Proposed Technology(ies) (Trench with Recovery Pumps, Soil Vapor Extraction, etc.)

_____

_____

_____

_____

_____

_____

Total time to achieve the corrective action goal is _____ months.

Total cost to achieve the corrective action goal is $_____ .

NOTE: Time and cost values include all time and costs associated with corrective action plan preparation; permit or license fees; installation and removal or abandonment of wells, trenches, remediation equipment and systems; report preparation; laboratory analysis; and other items.

Additional Comments (attach additional pages if required): _____ page(s) attached

_____

_____

_____

_____

_____

Site Rehabilitation Contractor: _____

Address: _____

_____

Telephone Number: (_____) _____

_____

Signature Printed or Typed Name Title

_____

Date Signed

INSTRUCTIONS
FOR
SITE REHABILITATION CONTRACTOR

Please complete the Corrective Action Bid Form by providing:
(Any questions may be addresses to the project manager listed on the form.)

Proposed Technology:	A complete description of the proposed corrective action technology(ies) or method(s) (e.g. removal of 2,000 cubic yards of soil in the former UST basin, then installation of Soil Vapor Extraction system until the goal is achieved).
Total Time:	The total time, in months, from contract award to completion of the corrective action. The total time will include time to install and remove any corrective action equipment, install and properly abandon wells or trenches, or other required actions.
Total Costs:	Total costs to install, operate and remove any corrective action equipment, install and remove additional wells or trenches, obtain permits and licenses, and any other required actions by the consulting firm, laboratories, and any subcontractor(s). Compensation from the SUPERB Account will be either to the UST Owner/Operator or the Environmental Consulting Firm as directed by the UST O/O. Compensation will be based on performance of corrective action goals. See the Bureau of UST Management “Corrective Action Criteria” for a full discussion.
Site rehabilitaion Contractor Data:	The contractor’s name, address, telephone number, and signature by a corporate officer.

Return the completed Corrective Action Bid proposal Form To the UST Owner/Operator. The site data sheet and any other attachments may be retained by the site rehabilitaion contractor for future reference.

D H E C
PROMOTE PROTECT PROSPER

Active Corrective Action Bid Proposal - Summary
Division of Underground Storage Tank Management

Facility ID#: _____ Facility Name: _____

1. Completed Corrective Action Bid Proposal Forms are attached from three contractors:

_____

_____

_____

2. Compensation from the SUPERB Account should be paid to: (please check one)

☐ UST/Owner
☐ Site Rehabilitation Contractor

3. Based on a review of the three consulting firms corrective action proposals, the corrective action at this site will be conducted by: (please check)

☐ Site Rehabilitation Contractor of my choice: (please name)

_____

I understand that the SUPERB Account will compensate for reasonable costs for the most effective and efficient corrective action method despite the proposed cost of a firm selected by me.

☐ I have NO PREFERENCE of Site Rehabilitation Contractor.

4. List any anticipated changes to the site in the near future: (e.g. sale, UST removal, etc.)

_____

_____

_____

_____

5. Additional Comments: (attach additional page(s) if required)

_____

_____

_____

_____

_____

UST Owner/Operator Name: _____

Address: _____

_____

Telephone Number: (____) _____

_____

Signature Printed or Typed Name Title

_____

Date Signed

D H E C

PROMOTE PROTECT PROSPER

Corrective Action (CA) BID Invoice
Division of Underground Storage Tank Management

Facility ID#: _____ County: _____

Facility Name: _____

Street Address: _____

Invoice #: _____ Cost Proposal #: _____

For work performed during (specify time period) _____ to _____

Contract Award Price for CA $: _____

Based on a report submitted: _____ (date)

Request payment for the following pay for Performance Item(s) as checked:

☐ Corrective Action Method or Technology Implemented and/or Operational
(40% of contract award price or $ _____)

Reduction in Chemicals of concern (COC)

☐ 25% Reduction in COC or Removal of Free Product
(10% of contract Award Price or $ _____)

☐ 50% Reduction in COC
(10% of Contract Award Price or $ _____)

☐ 75% Reduction in COC
(15% of Contract Award Price or $ _____)

☐ 100% Reduction in COC (meets Standard) AND CA System Removed
(25% of Contract Award Price or $ _____)

I certify, under penalty of law, that I have personally examined and am familiar with the information submitted in this and any attached documents; and that based on my inquiry of those individuals responsible for obtaining this information, and any other information I may be aware of, I believe that the submitted information is true, accurate, and complete. I further agree, in accordance with any DHEC demand letter, to promptly repay the appropriate account for any overpayment received.

COMPENSATION INFORMATION **Make payment to:**

Company Name | Address | Telephone Number

Name (type or print) | Federal Tax ID or Social Security Number

Signature (please use non-black ink) | Title | Date Signed

Please complete if payment is not to UST Owner or Operator

UST Owner or Operator

Signature (please use non-black ink) | Title (President, Owner) | Date Signed

Name (type or print) | Telephone Number

Address

D H E C
PROMOTE PROTECT PROSPER

Corrective Action Data Summary
Division of Underground Storage Tank Management

GENERAL

Facility ID #: _____ County: _____

Facility Name: _____

Facility Address: _____

UST Owner/Operator: _____ Phone #: _____

Address: _____

Current use of facility/property: _____

Current property owner name: _____

Current property owner address: _____

# of USTs: _____ Replaced / Tested: _____ Removed: _____
(Circle one) (date) (date)

Type of product: ☐ Gasoline ☐ Diesel ☐ Kerosene ☐ Waste Oil ☐ Other: _____
(specify)

Previous Treatment: ☐ Yes ☐ No Effectiveness: _____

The release occurred in: ☐ UST Basin ☐ Dispensers ☐ Line
☐ Other Please specify: _____

_____

EXPOSURE AND POINTS OF COMPLIANCE INFORMATION

List the exposure points, points of compliance and the x, y, and z coordinates for each.

EP	PC	x	y	z

SOIL SSTL's

Units _____

CoC	SSTL
Benzene	

Corrective Action Data Summary

Facility ID#: _____ Facility Name: _____

SSTLs

These SSTLs are established for each point of compliance. _____				Units:
Chemical of Concern	MW-GW	MW-GW	MW-GW	MW-GW
Benzene				

These SSTLs are established for each point of compliance. _____				Units:
Chemical of Concern	MW-GW	MW-GW	MW-GW	MW-GW

These SSTLs are established for each point of compliance. _____				Units:
Chemical of Concern	MW-GW	MW-GW	MW-GW	MW-GW

The technical file is available for review through the Freedom of Information Office.
Please call 803-734-5376 for an appointment.

Selected Remedial Approach

☐ Active ☐ Intrinsic

Corrective Action Data Summary

Receptors

List the receptors and exposure pathways (include distance from source).

References

Please see the following reports for site specific information.
(List the report title and date)

Contracting Company Name/Address:

CORRECTIVE ACTION MONITORING PLAN

Site Name/Address:

Facility ID #:

Submitted to:
Division of Underground Storage Tank Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Signature: _____
Date

Signature: _____
Registered Professional Date

PE/PG SEAL

SCDHEC Rehabilation Contractor Cerfication #:

D H E C

PROMOTE PROTECT PROSPER

Corrective Action Monitoring Plan

Facility ID#: _____

Proposed Monitoring Program

_____ Active Corrective Action _____ Intrinsic Corrective Action

List method used to verify intrinsic remediation:

Tracer compounds: _____ _____ _____

Time vs. concentration: _____

Other: _____

Proposed Sampling Parameters and Frequency

Parameter	Frequency	Well #

References

_____

_____

Appendix Check List

- ☐ Soil Quality Data Table
- ☐ Ground-Water Quality Data Table/Graph
- ☐ Potentiometric Data Table/Graph
- ☐ Site Map (topographic or county map)
- ☐ Tax Map
- ☐ Soil Impact Map
- ☐ Ground-Water Impact Map
- ☐ Cross Section
- ☐ Predicted Future Migration Map(s)
- ☐ North Arrow and Bar Scales on all maps

Contracting Company Name/Address:

CORRECTIVE ACTION
PERFORMANCE EVALUATION

Site Name/Address:

Facility ID #:

Submitted to:
Division of Underground Storage Tank Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Signature: _____
Date

Signature: _____
Registered Professional Date

SCDHEC Rehabilitation Contractor Certification #:

PE/PG SEAL

D H E C
PROMOTE PROTECT PROSPER

Corrective Action Performance Evaluation

Facility ID #: _____

Recptor Survey

List any new actual receptors: _____

_____

List any new potential receptors: _____

_____

Historical and Seasonal Trends

Evaluation: _____

_____

_____

_____

_____

_____

_____

Time Frame

Method used to calculate clean-up time: _____

The estimated time is: _____

Please attach calculations.

Zoning and Land Use Ordinances

Please attach relevant pages (if different from previous submittal).

Authorities Name: _____ Phone #: _____

Address: _____

Recommendations

_____

_____

_____

_____

_____

_____

Appendix Check List

☐ Ground-Water Quality Data Trends in Graphical format

☐ Potentiometric Data Table/Graph

☐ Site Map (topographic or county map)

☐ Ground-Water Impact Map(s)

☐ Biological Indicator Map(s)

☐ North Arrow and Bar Scales on all maps

☐ Laboratory Data Sheets and Chain of Custody

Facility ID #: ______________________________

Monitoring Report: ______________________________

Sampling Date: ______________________________ Units: ______________

Chemical	MW-	MW-	MW-	MW-
of Concern	GW	GW	GW	GW
BTEX				
Benzene				
Toluene				

Sampling Date: ______________________________ Units: ______________

Chemical	MW-	MW-	MW-	MW-
of Concern	GW	GW	GW	GW

Sampling Date: ______________________________ Units: ______________

Chemical	MW-	MW-	MW-	MW-
of Concern	GW	GW	GW	GW

Sampling Date: ______________________________ Units: ______________

Chemical	MW-	MW-	MW-	MW-
of Concern	GW	GW	GW	GW

Facility ID #: ______________________________

Monitoring Report: ______________________________

Sampling Date: ______________________________ Units: ______________

Biological Parameters	MW- GW	MW- GW	MW- GW	MW- GW
pH				
Temperature				

Sampling Date: ______________________________ Units: ______________

Biological Parameters	MW- GW	MW- GW	MW- GW	MW- GW
pH				
Temperature				

Sampling Date: ______________________________ Units: ______________

Biological Parameters	MW- GW	MW- GW	MW- GW	MW- GW
pH				
Temperature				

Sampling Date: ______________________________ Units: ______________

Biological Parameters	MW- GW	MW- GW	MW- GW	MW- GW
pH				
Temperature				